

**REBUTTAL TESTIMONY OF**  
**JAMES W. NEELY, P.E.**  
**ON BEHALF OF**  
**DOMINION ENERGY SOUTH CAROLINA, INC.**  
**DOCKET NO. 2019-184-E**

1   **Q.     PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2   A.           My name is James Neely and my business address is 220 Operation Way,  
3               Cayce, South Carolina.

4  
5   **Q.     ARE YOU THE SAME JAMES NEELY THAT OFFERED DIRECT**  
6               **TESTIMONY IN THIS DOCKET?**

7   A.           Yes, I am.

8  
9   **Q.     WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

10 A.           The purpose of my rebuttal testimony is to discuss the response of Dominion  
11 Energy South Carolina, Inc. (“DESC” or the “Company”) to certain issues raised  
12 in 1) the direct testimony of Mr. Brian Horii filed on behalf of the South Carolina  
13 Office of Regulatory Staff (“ORS”); 2) the direct testimony of Ms. Rebecca Chilton  
14 filed on behalf of Johnson Development Associates, Inc.; 3) the direct testimony  
15 of Mr. Ed Burgess filed on behalf of the South Carolina Solar Business Alliance;  
16 4) the direct testimony of Mr. Steven Levitas filed on behalf of the South Carolina

1 Solar Business Alliance; and 5) the direct testimony of Mr. Derek Stenclik filed on  
2 behalf of the South Carolina Coastal Conservation League and the Southern  
3 Alliance for Clean Energy.

4 **REBUTTAL TO TESTIMONY OF MR. BRIAN HORII**

5 **Q. WITH RESPECT TO MR. HORII'S TESTIMONY, PLEASE EXPLAIN**  
6 **HOW YOU ORGANIZE YOUR RESPONSES.**

7 A. My rebuttal testimony sequentially addresses certain issues raised by Mr.  
8 Horii as they appear in his direct testimony.

9  
10 **Q. AT PAGE 9, LINES 3 THROUGH 7, MR. HORII SUGGESTS THAT IT IS**  
11 **CONFUSING TO HAVE A SEPARATELY STATED VARIABLE**  
12 **INTEGRATION CHARGE ("VIC") FOR EXISTING PPAS AND**  
13 **HANDLING IT DIFFERENTLY FOR AVOIDED COST CALCULATIONS**  
14 **GOING FORWARD. HOW WOULD YOU RESPOND?**

15 A. As discussed in the Company's direct testimony, in setting the price for  
16 certain past PPAs the avoided cost calculations did not include the effect of solar  
17 generation on the operating reserves. However, these PPAs contained  
18 terms providing that VIC charges could be calculated in the future and added to the  
19 existing contracts. The historical VIC cost to apply to these contracts is what the  
20 Navigant study quantified. The Navigant calculation is based on historical levels of  
21 solar generation and is not relevant to costs associated with the next 100 MW  
22 increment of solar capacity or any future PPAs. The Navigant calculation will be

1 used for setting the VIC for this defined group of existing PPAs only and will not  
2 have any relevance outside of those existing PPAs.

3 By contrast, the avoided cost calculations which are presented in my  
4 testimony measure the avoided costs associated with the next 100 MW of solar  
5 generation to be added to the system. These are forward looking calculations and  
6 not historical ones. These calculations have a very different purpose and basis than  
7 the Navigant study. The two are not interchangeable.

8  
9 **Q. ON PAGE 12, LINES 3 THROUGH 23, MR. HORII STATES THAT THE**  
10 **COMPANY AND NAVIGANT DID NOT USE A BALANCED APPROACH**  
11 **TO CALCULATING OPERATING RESERVES. DO YOU AGREE WITH**  
12 **HIS STATEMENTS IN THIS REGARD?**

13 A. No, I do not. Mr. Horii asserts that certain places, such as New York City,  
14 require more reliability than other places due to the size of their metropolitan areas  
15 and the fact that they have elevators in tall buildings in which people should not fear  
16 being stuck during a power outage. While South Carolina certainly does not have  
17 the same numbers of tall buildings as does Manhattan and the surrounding boroughs,  
18 the people in our state also expect to receive safe and reliable electricity services,  
19 and it would be just as inconvenient to be trapped in an elevator in Columbia, for  
20 example, as it would in New York City. DESC serves major manufacturing facilities  
21 whose process equipment can be ruined if service is interrupted unexpectedly and  
22 for a sufficient duration. DESC serves major data centers and facilities such as

1 hospitals, nursing homes and surgical centers for whom reliable service is very  
2 important. While many of these facilities, like many of the large buildings in New  
3 York City, have backup generation, that generation is expensive to run and not  
4 immune from failure. Because South Carolina is not as densely populated as New  
5 York City in no way means that its customers have less need for reliable service. It  
6 in no way removes DESC's obligation and commitment to provide safe and reliable  
7 electric service to its customers. The Company therefore believes that Mr. Horii's  
8 suggestion that DESC should accept a greater risk of outages because South  
9 Carolina is not as urbanized as New York is without any merit.

10           Regardless, and as I discuss more fully below, DESC has not set its operating  
11 reserves at a level where an unreasonably low risk is being assumed. Instead, the  
12 Company analyzed its system as well as the operating characteristics of solar  
13 generators on its system and determined it needs additional operating reserves equal  
14 to 35% of the installed solar generation based upon 2018 solar data. Maintaining  
15 additional operating reserves equal to 35% of installed solar generation only covers  
16 96% of the 1- hour reductions and, therefore, even this level of reserves may not be  
17 sufficient to maintain system reliability. In summary, the Company and its  
18 customers are exposed to risks, but the Company believes the risk level is acceptable  
19 and manageable, but any greater risk, as is recommended by Mr. Horii, would be  
20 unwise and imprudent in our judgment.

1 **Q. ON PAGE 27, LINES 8 THROUGH 14, MR. HORII RECOMMENDS THAT**  
2 **THE COMMISSION DISAPPROVE DESC'S ESTIMATE OF AVOIDED**  
3 **ENERGY COSTS FOR SOLAR RESOURCES. HOW DO YOU RESPOND**  
4 **TO THIS RECOMMENDATION?**

5 A. Mr. Horii's recommendation is premised upon his assertion that DESC  
6 overstated the need for additional operating reserves to accommodate the integration  
7 of solar energy and that his belief that these additional operating reserves improperly  
8 reduce the net avoided energy costs estimated for solar resources. As discussed in  
9 my testimony, DESC determined that it must maintain additional reserves to address  
10 the inherent variability of solar generation. DESC therefore has appropriately  
11 calculated avoided energy costs for solar and non-solar resources.  
12

13 **Q. ON PAGE 27, LINES 19-20, AND ON PAGE 28, LINE 1 THROUGH PAGE**  
14 **29, LINE 4, MR. HORII TESTIFIES THAT DESC OVERSTATED THE**  
15 **NEED FOR ADDITIONAL OPERATING RESERVES TO**  
16 **ACCOMMODATE THE INTEGRATION OF SOLAR RESOURCES. ON**  
17 **PAGE 29, LINE 5 THROUGH PAGE 29, LINE 13, HE ALSO STATES THAT**  
18 **IT MAY BE APPROPRIATE FOR DESC TO USE SOLAR DROPS OVER A**  
19 **SHORTER TIMEFRAME THAN 15 MINUTES. HOW DO YOU RESPOND**  
20 **TO HIS SUGGESTION?**

21 A. The basis for Mr. Horii's criticism is his assertion that the need for additional  
22 reserves would be less if solar output was analyzed over a 15-minute period. Mr.

1 Horii's recommendation is flawed, however, because he fails to take into account  
2 the fact that solar generation can decline over longer periods of time than 15  
3 minutes. Using data analyzed over a 15-minute period would not capture the needed  
4 operating reserves to cover these periods that can last up to 4 hours when solar  
5 output is reduced. Also, maintaining additional reserves equal to 35% of installed  
6 solar generation only covers 96% of the 1-hour reductions and, therefore, even this  
7 level of reserves may not be enough to maintain system reliability. Specifically, if  
8 the 4-hour reductions were used as the basis for additional reserves, then the  
9 reserves would need to be increased to greater than 60% of the installed solar  
10 generating capacity.

11  
12 **Q. ON PAGE 27, LINE 23 AND ON PAGE 29, LINE 14, THROUGH PAGE 30,**  
13 **LINE 3, MR. HORII STATES THAT HE IDENTIFIED CERTAIN**  
14 **FUNDAMENTAL FLAWS IN THE METHOD USED BY DESC TO**  
15 **CALCULATE THE APPROPRIATE LEVEL OF OPERATING RESERVES.**  
16 **IS HE CORRECT?**

17 A. Mr. Horii observes that data used by the Company in calculating the  
18 operating costs due to higher solar operating reserve requirements reflected annual  
19 values that alternate between positive and negative values. After ORS raised this  
20 issue through its data requests issued to DESC in this matter, the Company reviewed  
21 its calculations and identified an error in the implementation of the operating reserve  
22 methodology. After discovering this error, the Company promptly addressed the

issue and presented the updated and correct calculations by filing an amended version of my direct testimony on September 20, 2019. The corrected information is presented in the table below and demonstrates that, in each year, the cost associated with maintaining additional operating reserves needed to integrate solar generation is a positive number. This table is not linear because of differences in forecasted maintenance outages and forced outages from year to year.

Year	Additional Operating Reserve Costs (\$/MWh)
2020	3.26
2021	7.57
2022	7.54
2023	4.34
2024	11.15
2025	8.39
2026	8.80
2027	13.71
2028	10.82
2029	9.91

**Q. ON PAGE 31, LINES 14 THROUGH 17, MR. HORII RECOMMENDS THE COMMISSION APPROVE HIS AVOIDED ENERGY COSTS FOR RATE PR-1 AND THE STANDARD OFFER. DO YOU AGREE WITH HIS PROPOSED AVOIDED ENERGY COSTS?**

**A.** No. In his testimony, Mr. Horii agrees that solar integration costs do exist, but he does not include these costs in his proposed avoided energy costs. As a result, Mr. Horii effectively is recommending that all of these costs be shifted to DESC customers, which is directly contrary to the mandates of Act No. 62 and specifically

1 S.C. Code Ann. § 58-41-20(A) which states that “[a]ny decisions by the commission  
2 shall be just and reasonable to the ratepayers of the electrical utility ... and shall  
3 strive to reduce the risk placed on the using and consuming public.” I would also  
4 note that Act No. 62 specifically incorporates by reference PURPA and states that  
5 “[a]ny decisions by the commission shall be ... consistent with PURPA and the  
6 Federal Energy Regulatory Commission’s implementing regulations and orders.”  
7 S.C. Code Ann. § 58-41-20(A). For over 40 years, PURPA has made clear that  
8 electric utilities are only obligated to pay QFs their avoided costs and nothing more.  
9 To require otherwise would result in DESC’s electric customers subsidizing private  
10 QF development projects, which is contrary to the intent of PURPA.

11  
12 **Q. ON PAGE 33 LINES 7 THROUGH 12, MR. HORII DISAGREES WITH THE**  
13 **COMPANY’S AVOIDED CAPACITY VALUE FOR NON-SOLAR**  
14 **PROJECTS AND STATES THAT THE COMPANY MADE SEVERAL**  
15 **ASSUMPTION ERRORS THAT LEAD TO AN UNDERESTIMATION OF**  
16 **AVOIDED CAPACITY VALUE. DO YOU AGREE?**

17 A. No. As I discuss in more detail below, the Company did not make any  
18 assumption errors and properly calculated the avoided capacity value.



**Q ON PAGE 32, LINES 7 THROUGH 12 MR. HORII STATES THAT THE COMPANY USED THE WRONG TARGET RESERVE MARGIN. WHAT IS YOUR RESPONSE TO THIS STATEMENT?**

**A.** DESC did not use the wrong target reserve margin. As described in Exhibit No. \_\_ (JML-3) of Witness Dr. Joseph Lynch's testimony, DESC maintains two components of reserve margin for each season. See the summary of table 7 from Exhibit No. \_\_ (JML- 3) reproduced below.

DESC's Reserve Margin Policy		
	Summer	Winter
Base Reserves	12%	14%
Peaking Reserves	14%	21%

Winter peaking capacity is added to cover the extreme weather events that occur 5 to 10 days a year and the Company maintains a 21% reserve margin during those periods to ensure reliable service. Additional generating resources, such as gas fired turbines, are added to meet a 14% winter base reserve margin requirement. These are more expensive resources and are available for most hours of the year. DESC plans to meet the difference between the base reserve margin and the peaking reserve margin (7% in winter and 2% in summer) with lower costs resources such as seasonal capacity purchases from off system or interruptible contracts with customers. The resources to meet the peaking reserve margin can be cheaper time-limited resources. DESC separates its reserve margin requirements into peaking and base in order to develop a resource plan that is least cost to our customers. From his testimony is does not appear that Mr. Horii understands the nature of these two

1 capacity reserve targets and so indicates that DESC has made a mistake in using the  
2 lower target for part of its avoided cost analysis. These reserve margins are  
3 reasonable and necessary to meet the reliability requirements which the  
4 Commission and our customers expect.

5  
6 **Q. ON PAGE 33, LINES 22 THROUGH 23, AND ON PAGE 34, LINE 6**  
7 **THROUGH PAGE 35, LINE 4, MR. HORII STATES THAT THE**  
8 **COMPANY INCORRECTLY CONCLUDED INCREMENTAL SOLAR**  
9 **PROVIDES NO CAPACITY VALUE IN THE WINTER. WHAT IS YOUR**  
10 **RESPONSE TO THIS STATEMENT?**

11 A. DESC performed a study that analyzed the impact of solar on its daily peak  
12 demands. This study is titled "The Capacity Benefit of Solar QFs 2018 Study," and  
13 a copy is attached to the Direct Testimony of Company Witness Dr. Joseph M.  
14 Lynch as Exhibit No. \_\_ (JML-1). The study demonstrates that solar does not help  
15 DESC avoid any need for capacity in the winter season, primarily because the winter  
16 peak occurs either early in the morning before solar begins to generate energy or in  
17 the evening after solar is no longer generating. Consequently, because solar does  
18 not consistently provide capacity during the winter peak periods, the Company is  
19 unable to avoid any of its projected future capacity needs which occur in the winter  
20 and, therefore, the avoided capacity cost of solar is zero. Making capacity payments  
21 to solar providers when no capacity costs are avoided inappropriately increase costs  
22 to all customers. This is not a matter of speculation. DESC's decisions concerning

1 when it must add capacity to meet customer peak demands will not be changed by  
2 the addition of more solar generation to its system. Adding such generation will not  
3 result in capacity costs being avoided. Granting solar generators avoided capacity  
4 cost payments will result in payments that are not justified by changes in the  
5 investments DESC must make in its system. Rather, such payments will be avoided  
6 cost payments for costs that are not avoided.  
7

8 **Q. ON PAGE 34, LINES 3 THROUGH 5, ON PAGE 37, LINES 12 THROUGH**  
9 **14, AND ON PAGE 40, LINES 12 THROUGH 19, MR. HORII STATES**  
10 **THAT THE COMPANY'S CALCULATIONS FOR COST OF AVOIDABLE**  
11 **CAPACITY ARE BASED ON THE COST OF LOW COST PURCHASED**  
12 **POWER INSTEAD OF THE COSTS OF A COMBUSTION TURBINE**  
13 **("CT") AS REFLECTED IN THE COMPANY'S MOST RECENT IRP. HOW**  
14 **DO YOU RESPOND?**

15 A. The low-cost capacity resources in the avoided capacity calculation were the  
16 same as those shown on pages 47 and 48 of the Company's 2019 IRP. These low-  
17 cost capacity resources could be purchased power or other types of low-cost  
18 resources such as interruptible load. These low-cost capacity resources were meant  
19 to provide needed peaking reserves for the top 10 to 20 days of highest capacity  
20 need each year. Because only half of the peak days would occur in the winter, it  
21 would be inappropriate to add a generating resource for the purpose of only covering  
22 generation needs for 5 to 10 winter peak days a year. Instead, the Company currently

1 plans to only add generating resources to the resource plan when the winter reserve  
2 margin drops below the 14% level or the summer reserve margin drops below the  
3 12% level. These costs accurately reflect DESC's forecasted costs and reflect an  
4 approach to system planning that minimizes costs to customers.

5  
6 **Q. ON PAGE 38, LINE 6 THROUGH PAGE 39, LINE 3, MR. HORII STATES**  
7 **IT IS MORE APPROPRIATE TO USE A 20-YEAR ECONOMIC LIFE FOR**  
8 **A CT PLANT INSTEAD OF DESC'S 60-YEAR ECONOMIC LIFE. DO YOU**  
9 **AGREE?**

10 A. No. As detailed on page III-6 of the "SCE&G 2014 Depreciation Study"  
11 which was filed with the Commission in Docket No. 2015-313-E and approved by  
12 the Commission on September 16, 2015, the life span of peaking turbines is between  
13 60 and 75 years. In fact, DESC has peaking turbines that are still operating after  
14 more than 45 years, as reflected on page 36 of the 2019 IRP. It therefore is entirely  
15 appropriate and evidence based to use a 60-year economic life when considering the  
16 annual cost of a CT unit. To suggest using a shorter economic life is inconsistent  
17 with the actual useful life of these assets and the depreciation analysis reviewed and  
18 accepted by the Commission and results in DESC customers overpaying avoided  
19 capacity costs.

1 **Q. ON PAGE 39, LINE 4 THROUGH PAGE 40, LINE 2, MR. HORII**  
2 **RECOMMENDS THAT THE DRR AVOIDED CAPACITY CALCULATION**  
3 **BE MADE USING A 93 MW CHANGE IN GENERATION INSTEAD OF A**  
4 **100 MW CHANGE. WHAT IS YOUR RESPONSE TO HIS**  
5 **RECOMMENDATION?**

6 A. PURPA specifically provides that a utility may use a capacity change of up  
7 to 100 MW to calculate avoided costs. Using a capacity change of 100 MW is  
8 consistent with the avoided energy costs and with the Company's prior calculations.  
9 Moreover, using a 93 MW capacity change as Mr. Horii suggests would not address  
10 his concern about the "lumpiness" in the calculation. The only way to avoid such  
11 "lumpiness" would be to add additional resources that exactly equal the amount  
12 needed to meet the reserve margin requirement each year, which is unreasonable.

13  
14 **Q. ON PAGE 41, LINES 7 THROUGH 13, MR. HORII RECOMMENDS**  
15 **CERTAIN AVOIDED CAPACITY RATES BE APPROVED BY THE**  
16 **COMMISSION. DO YOU AGREE WITH HIS RECOMMENDED AVOIDED**  
17 **CAPACITY RATES?**

18 A. No. As previously discussed, Mr. Horii's principal error is assuming that  
19 solar generation can help DESC meet its winter peak. In addition, in computing his  
20 cost of avoided capacity, Mr. Horri has made a number of incorrect assumptions in  
21 his modification of DESC avoided capacity calculation, such as his failure to  
22 distinguish between avoided peaking resources and base resources by only using a

1 21% reserve margin, changing the avoided capacity to 93 MW rather than 100 MW,  
2 and changing the peaking turbine life to 20 years. All of these changes result in  
3 increasing the avoided capacity costs. It should be noted that Mr. Horii proposed  
4 avoided capacity rates that are approximately 3.37 times greater than the rates  
5 calculated by the Company. These are additional costs which would be borne by  
6 DESC's customers. We recommend that Mr. Horii's suggested rates be rejected.  
7

8 **Q. ON PAGE 43, LINE 1 THROUGH PAGE 44, LINE 2, MR HORII**  
9 **RECOMMENDS UPDATING THE NEM DER COMPONENTS OF VALUE**  
10 **BASED ON HIS ANALYSES. DO YOU AGREE WITH HIS**  
11 **RECOMMENDED VALUES?**

12 A. No. Mr. Horii has provided no basis for his avoided energy costs.  
13 Specifically, he has not identified which model he used, which data he relied upon,  
14 or his underlying assumptions. His recommended capacity value of solar also is  
15 clearly overstated in that he calculates a capacity value for solar of \$247.25/MWh.  
16 But as I have explained, and Witness Lynch has explained, solar does not avoid any  
17 capacity resources in DESC's resource plan and therefore has zero avoided capacity  
18 costs and by definition zero capacity value. To pay for and rely on solar generation  
19 for capacity during those hours would reduce system reliability and would ignore  
20 the facts of solar generation on DESC's system.

**REBUTTAL TO TESTIMONY OF MS. REBECCA CHILTON**

**Q. WITH RESPECT TO MS. CHILTON'S TESTIMONY, PLEASE EXPLAIN HOW YOU ORGANIZE YOUR RESPONSES.**

A. In the same manner I previously responded to the testimony of the other parties' witnesses, my rebuttal testimony sequentially addresses certain issues raised by Ms. Chilton as they appear in her direct testimony.

**Q. ON PAGE 4, LINE 13 THROUGH LINE 14, MS. CHILTON STATES THAT DESC'S AVOIDED COST FILING DOESN'T APPRECIATE THE PURPOSE OF ACT NO. 62. DO YOU AGREE WITH HER TESTIMONY IN THIS REGARD?**

A. No. Prior to Act No. 62, DESC filed avoided costs for PR-1 (100 KW or less) solar and non-solar plus PR-2 solar (100 kW to 80 Mw). In the current avoided cost DESC is filing:

- 1) PR-1 solar and non-solar tariff (100 kW or less);
- 2) Standard offer solar and non-solar tariff (100 kW to 2 MW);
- 3) Solar with storage rates;
- 4) Form PPA (2 MW and up); and
- 5) Avoided Cost methodology tariff

Item No. 1 above is required by PURPA and item nos. 2-5 above were all filed directly in response to Act No. 62. In addition, in this proceeding DESC is clarifying how it will include solar integration costs going forward.

1 **Q. ON PAGE 7, LINE 21 THROUGH PAGE 8, LINE 9, MS. CHILTON**  
2 **STATES THAT NATURAL GAS HAS BECOME ONE OF THE MORE**  
3 **SIGNIFICANT DRIVERS IN AVOIDED COST CALCULATIONS AND**  
4 **REFERENCES PROJECTIONS THAT SUGGEST NATURAL GAS**  
5 **PRICES WILL TRIPLE OVER THE NEXT 30 YEARS. DO YOU AGREE**  
6 **WITH HER TESTIMONY IN THIS REGARD?**

7 A. It is entirely possible that gas prices could triple over the next 30 years. It  
8 also is entirely possible that they could drop by 50% over the next 30 years.  
9 Fortunately, DESC calculates its avoided costs over 10 years so most of that long  
10 term uncertainty is not relevant. Although it is impossible to predict with certainty  
11 what will happen with gas prices, our forecast of natural gas prices is based upon  
12 reasonable and appropriate assumptions as well as third party industry data. Even  
13 so, forecasts can and do change from time to time and this is most effectively  
14 addressed by recalculating each solar providers avoided costs every year.

15  
16 **REBUTTAL TO TESTIMONY OF MR. ED BURGESS**

17 **Q. WITH RESPECT TO MR. BURGESS' TESTIMONY, PLEASE EXPLAIN**  
18 **HOW YOU ORGANIZE YOUR RESPONSES.**

19 A. In the same manner I previously responded to the testimony of the other  
20 parties' witnesses, my rebuttal testimony sequentially addresses certain issues raised  
21 by Mr. Burgess as they appear in his direct testimony.



1   **Q.     ON PAGE 6, LINE 15 THROUGH PAGE 9, LINE 9, MR. BURGESS**  
2       **SUGGESTS THAT UTILITIES HAVE CERTAIN INCENTIVES AND**  
3       **BIASES IN CALCULATING AVOIDED COST RATES. HOW DO YOU**  
4       **RESPOND TO THIS SUGGESTION?**

5   A.       Mr. Burgess has not provided any evidence to support his speculative  
6       criticisms of DESC's analyses. That said, DESC's incentive is to be faithful to the  
7       requirements of Act No. 62 and PURPA and to determine its cost as accurately as  
8       reasonably possible so that our customers are not harmed by the Company paying  
9       solar developers more than its actual avoided costs, while solar developers are not  
10      harmed by being paid less than the Company's actual avoided costs.

11  
12   **Q.     ON PAGE 9, LINE 10 THROUGH PAGE 10, LINE 1, MR. BURGESS**  
13      **IDENTIFIES CERTAIN FACTORS THAT HE ALLEGES ARE BIASED**  
14      **AGAINST QFs. DO YOU AGREE WITH HIM?**

15   A.       No, I do not agree. Again, Mr. Burgess provides no support for his  
16      assumptions, and, as I have stated previously, DESC's analysis is not biased against  
17      or in favor of anyone.

1 **Q. ON PAGE 10, LINE 1 THROUGH PAGE 11, LINE 11, AND ON PAGE 15,**  
2 **LINE 12 THROUGH PAGE 16, LINE 20, MR. BURGESS STATES THAT**  
3 **QF RATES SHOULD BE SET TOWARDS THE HIGHER END OF A**  
4 **“ZONE OF REASONABLENESS.” DO YOU AGREE WITH HIS**  
5 **SUGGESTION IN THIS REGARD?**

6 A. I do not. It appears that Mr. Burgess has created this concept of a “zone of  
7 reasonableness” in an attempt to artificially raise the avoided costs in order to help  
8 solar developers. He acknowledges that his “zone of reasonableness” would shift  
9 costs from solar developers to customers, contrary to Act No. 62, but seeks to  
10 excuse this violation by saying this would only “marginally increase customer  
11 costs.” This is not what is required by either PURPA or Act No. 62, however.  
12 Instead, QF developers are only entitled to receive the utility’s actual avoided costs  
13 and nothing more than that. To require otherwise not only would violate the intent  
14 of PURPA and Act No. 62, it also would shift the risk of solar developments onto  
15 DESC’s customers and arbitrarily increase their rates in the process.

16  
17 **Q. ON PAGE 16, LINE 21 THROUGH PAGE 18, LINE 1, MR. BURGESS**  
18 **TESTIFIES THAT ELIMINATING THE VIC CHARGE WILL HAVE A**  
19 **NEGLIGIBLE IMPACT ON CUSTOMER BILLS WHILE PROVIDING**  
20 **END-USE CUSTOMERS WITH STABLE ENERGY COSTS FROM QF**  
21 **RESOURCES OVER THE NEXT TEN YEARS. DO YOU AGREE WITH**  
22 **HIS SUGGESTION?**

1 A. I do not. Even assuming Mr. Burgess' calculations are correct, and they are  
2 not, what he is proposing is that the Company charge its customers \$7.2 Million  
3 for cost created by solar projects. While Mr. Burgess may think it is appropriate for  
4 DESC's customers to bear costs that are directly caused by solar developers, this  
5 is directly contrary to the intent of PURPA and Act No. 62. The Company therefore  
6 recommends that the Commission reject his proposal to shift the cost burden onto  
7 customers through higher rates.

8  
9 **Q. ON PAGE 18, LINE 18 THROUGH PAGE 19, LINE 11, MR. BURGESS**  
10 **STATES HIS BELIEF THAT IT IS INAPPROPRIATE TO USE**  
11 **DIFFERENT RATE METHODOLOGIES FOR SOLAR AND SOLAR-**  
12 **PLUS STORAGE. HOW DO YOU RESPOND TO HIS TESTIMONY IN**  
13 **THIS REGARD?**

14 A. Solar and solar with storage are different resources with different generation  
15 profiles. The methodology used by DESC for calculating the avoided cost from  
16 each properly reflects these differences. Furthermore, considering the "full suite  
17 of QF technological possibilities" increases, not reduces, the need for resource  
18 specific avoided cost calculations. Consequently, different resource specific rates  
19 are not only appropriate and reasonable, but result in the most accurate  
20 determination of avoided cost for each technology, which DESC believes is  
21 consistent with the requirements of Act No. 62.

1   **Q.     ON PAGE 19, LINE 12 THROUGH PAGE 20, LINE 3, MR. BURGESS**  
2       **RECOMMENDS THAT THE COMMISSION APPROVE A SINGLE QF**  
3       **RATE THAT REFLECTS THE VALUE TO DESC'S SYSTEM**  
4       **REGARDLESS OF THE UNDERLYING TECHNOLOGY. IS HIS**  
5       **RECOMMENDATION REASONABLE?**

6   **A.**       No, it is not. As discussed previously, DESC currently has PPAs for 1,048  
7       MW of non-dispatchable variable solar generation. Solar has a unique profile and  
8       therefore the true avoided cost of additional non-dispatchable solar can only be  
9       accurately captured using a solar specific avoided cost calculation. As well, the  
10      Form PPA tariff envisioned by Act No. 62 allows utilities to calculate resource  
11      specific avoided cost rates.

12  
13   **Q.     ON PAGE 20, LINES 4 THROUGH 15, MR. BURGESS RECOMMENDS**  
14       **CERTAIN CHANGES BE MADE IF A "TECHNOLOGY NEUTRAL**  
15       **RATE" IS NOT ADOPTED. DO YOU AGREE WITH HIS**  
16       **RECOMMENDED CHANGES?**

17   **A.**       No. Every project that comprises the 1,048 MW of the connected or soon to  
18       be interconnected solar generation on the Company's system has been non-  
19       dispatchable. It therefore is appropriate to calculate the solar avoided cost based on  
20       non-dispatchable solar. The Form PPA tariff envisioned by Act No. 62 allows  
21       utilities to calculate resource specific, such as flexible solar, avoided cost rates.

1 **Q. ON PAGE 21, LINES 1 THROUGH 14, MR. BURGESS TESTIFIES THAT**  
2 **DESC'S AVOIDED COST FILINGS ARE NOT "REASONABLY**  
3 **TRANSPARENT." HOW DO YOU RESPOND?**

4 A. I believe that Mr. Burgess' own testimony disproves his suggestion that  
5 DESC's avoided cost filings are not reasonably transparent. On page 21, line 17  
6 through page 22, line 12 of his direct testimony, Mr. Burgess accurately describes  
7 the methodology used by the Company, which indicates that he understands and is  
8 aware of the methodology employed as well as its individual components and the  
9 underlying data. I would also state that DESC properly responded to all of  
10 SCSBA's requests for information.

11  
12 **Q. ON PAGE 22, LINES 18 THROUGH 19, AND ON PAGE 28, LINE 6**  
13 **THROUGH PAGE 29, LINE 5, MR. BURGESS EXPRESSES A CONCERN**  
14 **THAT DESC INACCURATELY INCLUDED INTEGRATION COSTS IN**  
15 **ITS PROPOSED AVOIDED ENERGY COSTS FOR NEW SOLAR QFS. IS**  
16 **HIS CONCERN VALID?**

17 A. No. Mr. Burgess provides no data or calculations to support his statement.  
18 As stated in my testimony on page 10 lines 17 through 22, the Company observed  
19 that solar generation increases the need for additional operating reserves and that  
20 additional operating reserves equal to 35% of the installed solar are needed to cover  
21 most of the 1-hour solar intermittency. The avoided cost calculations included in  
22 this testimony were modeled with additional operating reserves equal to 35% of

1 the installed solar, during solar generating hours. Requiring additional operating  
2 reserves equal to 35% of installed solar generation only covers 96% of the 1-hour  
3 reductions and may be insufficient to maintain system reliability. If 4-hour  
4 reductions were used as the basis for additional operating reserves, then the  
5 operating reserves would need to be increased to greater than 60% of installed solar  
6 generation.

7  
8 **Q. ON PAGE 22, LINES 20 THROUGH 21, AND ON PAGE 29, LINE 6**  
9 **THROUGH PAGE 33, LINE 5, MR. BURGESS ALSO RAISES CONCERNS**  
10 **ABOUT DESC'S TREATMENT OF SOLAR WITH STORAGE,**  
11 **INCLUDING STORAGE DISPATCH CAPABILITIES, SIZING**  
12 **REQUIREMENTS, AND UTILITY CONTROL REQUIREMENTS. HOW**  
13 **DO YOU RESPOND?**

14 **A.** DESC has not proposed a solar with storage tariff because it expects that the  
15 size of these projects will exceed the 2 MW limit for standard offer projects. The  
16 Company also expects that these projects will need unique calculations of energy  
17 and capacity that would be appropriate under the Form PPA tariff.

1 **Q. ON PAGE 24, LINES 1 THROUGH 2, MR. BURGESS SUGGESTS THAT,**  
2 **IN SELECTING ITS FOUR PRICING PERIODS USED IN**  
3 **CALCULATING AVOIDED COSTS, DESC WAS BIASED AGAINST**  
4 **SOLAR. DO YOU AGREE WITH HIS SUGGESTION?**

5 A. I do not. The time period avoided costs calculations cannot be biased against  
6 solar since they do not apply to solar generation. They are only available to non-  
7 solar QFs. Therefore, it is unreasonable to believe that these time periods are  
8 somehow biased against solar and Mr. Burgess provides no explanation in this  
9 regard.

10  
11 **Q. ON PAGE 34, LINE 6 THROUGH PAGE 35, LINE 3, MR. BURGESS**  
12 **EXPRESSES CERTAIN CONCERNS ABOUT DESC'S AVOIDED**  
13 **ENERGY COST MODEL WITH RESPECT TO IMPORTS AND**  
14 **EXPORTS. DO YOU SHARE HIS CONCERNS?**

15 A. I do not. The avoided energy cost model is designed to model the DESC  
16 system in a way that simulates the actual dispatch of energy resources. DESC  
17 system operates primarily as an isolated system with limited off-system purchases  
18 and sales. Although it is unclear whether using a different approach would increase  
19 or decrease avoided cost, as a general rule, adding more resources to the model  
20 serves to lower the marginal cost and likely lower the avoided cost, which would  
21 have the opposite effect suggested by Mr. Burgess.

1 **Q. ON PAGE 35, LINE 4 THROUGH PAGE 36, LINE 10, MR. BURGESS**  
2 **SUGGESTS THAT DESC FAILED TO INCLUDE COSTS ASSOCIATED**  
3 **WITH COAL COMBUSTION RESIDUALS THAT COULD BE**  
4 **MITIGATED BY QFs. IS HE CORRECT?**

5 A. Yes. Coal combustion residual costs are not modeled in PROSYM. The  
6 revenue from the sale of coal ash offsets most of the ash handling and disposal  
7 costs. The expected net costs for 2019 created by coal combustion residuals are  
8 approximately \$0.0001/MWh. This value is too small to make a meaningful  
9 impact.

10  
11 **Q. ON PAGE 36, LINE 11 THROUGH PAGE 37, LINE 1, MR. BURGESS**  
12 **RECOMMENDS THAT DESC SHOULD BE REQUIRED TO RERUN ITS**  
13 **MODELS WITH DIFFERENT INPUTS AND THAT THE COMPANY IS**  
14 **CAPABLE OF DOING SO IN A TIMELY MANNER. IS HE CORRECT?**

15 A. While DESC has the capability to rerun models with different inputs, the  
16 time it would take to conduct such an analysis would depend upon the proposed  
17 change in inputs and whether any additional modeling or studies would need to be  
18 conducted to verify its accuracy. Nevertheless, the Company believes the inputs  
19 used in its modeling yield results that reasonably reflect the Company's avoided  
20 cost and believe that further modeling is unnecessary and would not change the  
21 results of DESC's avoided cost calculations.



1 **Q. ON PAGE 37, LINE 2 THROUGH PAGE 38, LINE 2, MR BURGESS**  
2 **PROPOSES TO REVISE THE WAY DESC LEVELIZES ITS AVOIDED**  
3 **ENERGY COSTS ACROSS YEARLY PERIODS. DO YOU AGREE WITH**  
4 **HIS PROPOSAL?**

5 A. No. While his proposal is not unreasonable, it would not have any impact on  
6 the actual avoided cost. Rather, it only would make avoided costs more  
7 cumbersome to administer, therefore, with no clear benefits and administration  
8 being more difficult, I believe his proposal should be rejected.

9  
10 **Q. ON PAGE 39, LINE 7, THROUGH PAGE 40, LINE 7, MR. BURGESS**  
11 **DISCUSSES THE MANNER IN WHICH DESC CALCULATED ITS**  
12 **AVOIDED CAPACITY COSTS AND THAT IT USED “RESOURCE**  
13 **SCENARIO #7” TO DEVELOP AVOIDED COSTS AND FORECASTING**  
14 **FUEL COSTS. HOWEVER, HE STATES THAT, IN DISCOVERY, DESC**  
15 **CLARIFIED IT USED AN ICT PEAKING TURBINE. PLEASE EXPLAIN.**

16 A. Using resource plan #7 to calculate avoided energy costs is appropriate  
17 because it is the least cost resource plan identified in the DESC resource plan study  
18 attached to my testimony as Exhibit No. \_\_ (JWN-1). Using a different plan, for  
19 instance, one that is populated with peaking resources, is appropriate for  
20 calculating avoided capacity costs of QFs that would potentially displace peaking  
21 resources.

1   **Q.     ON PAGE 40, LINES 15 THROUGH 20, MR. BURGESS TESTIFIES THAT**  
2       **DESC’S ASSUMED CAPITAL COST OF A NEW PEAKER FACILITY IS**  
3       **INCORRECT AND POTENTIALLY BIASED AGAINST QFs. DO YOU**  
4       **AGREE?**

5   **A.**       I do not. The capital cost of peaking resources accurately reflects the cost of  
6       procuring and installing a 100 MW aero-derivative simple cycle generating units  
7       with a net capacity of 93 MW on DESC’s system. This cost is also consistent with  
8       the benchmark cost of peaking resources reported by the Energy Information  
9       Administration of the United States Department of Energy.

10  
11   **Q.     ON PAGE 41, LINE 1 THROUGH PAGE 42, LINE 7, MR. BURGESS**  
12       **SUGGESTS THAT OTHER TYPES OF PEAKING UNITS MIGHT BE**  
13       **APPROPRIATE FOR DESC TO CONSIDER IN ITS SELECTION. WHAT**  
14       **IS YOUR RESPONSE TO HIS SUGGESTION?**

15   **A.**       DESC’s choice of peaking resource is appropriate. The 93 MW ICT resource  
16       plan was the lowest cost peaking resource plan identified in the DESC resource  
17       plan study attached to my testimony as Exhibit No. \_\_ (JWN-1). Mr. Burgess’  
18       recommendations create a more expensive plan.

1 **Q. ON PAGE 43, LINES 1-10, MR. BURGESS RECOMMENDS THAT A**  
2 **CAPITAL COST ASSUMPTION REPRESENTING THE MIDPOINT OF**  
3 **TWO CLASSES OF PEAKER TECHNOLOGIES BE USED IN**  
4 **ESTIMATING DESC'S CAPITAL COSTS. DO YOU AGREE?**

5 A. No. There are many expansion plans that DESC could have chosen, but the  
6 Company believes that the expansion plan it has chosen is the most appropriate. I  
7 would also note that capacity payments are only available to non-solar QFs because  
8 solar QF facilities do not allow the Company to avoid any future capacity needs.  
9 However, no non-solar QFs have recently requested to interconnect with DESC  
10 and the Company is not aware of any new non-solar QFs projects that may do so  
11 in the near future.

12  
13 **Q. ON PAGE 43, LINE 11 THROUGH PAGE 44, LINE 11, MR. BURGESS**  
14 **SUGGESTS THAT DESC'S ESTIMATED COST OF FUTURE CAPACITY**  
15 **COSTS IS INAPPROPRIATE. WHAT IS YOUR RESPONSE TO HIS**  
16 **SUGGESTION?**

17 A. The purchased capacity component of DESC's avoided capacity calculation  
18 is a 3-month winter purchase or winter demand response resource. The PJM  
19 number is a yearly number. Converting the PJM value provided by Mr. Burgess of  
20 \$31.50/kW-yr to a monthly value then multiplying by 3 months equals \$7.875/kW  
21 which is lower than the \$13.50/kW that DESC proposes to use. Mr. Burgess'

1 suggestion, if properly applied, would result in a lower avoided cost of capacity  
2 cost, not a higher one.  
3

4 **Q. ON PAGE 44, LINE 12 THROUGH PAGE 45, LINE 6, MR. BURGESS**  
5 **STATES HIS RECOMMENDED AVOIDED CAPACITY COSTS. DO YOU**  
6 **CONSIDER THESE TO BE REASONABLE?**

7 A. I do not. The Company could certainly use more expensive resources to  
8 calculate avoided capacity costs, although that would be in conflict with the intent  
9 of PURPA. As discussed previously, solar QF facilities do not allow DESC to avoid  
10 any future capacity needs. For this reason, capacity payments are only available to  
11 non-solar QFs that actually help the Company meet its capacity needs. No non-  
12 solar QFs have recently requested to interconnect with DESC, and the Company is  
13 not aware of any new non-solar QF projects that may do so in the near future.  
14

15 **Q. ON PAGE 45, LINE 7 THROUGH PAGE 57, LINE 3, MR. BURGESS**  
16 **TESTIFIES THAT HE IDENTIFIED CERTAIN PROBLEMS WITH**  
17 **DESC'S ASSUMPTIONS IN THE RESOURCE PLAN. DO YOU AGREE**  
18 **THAT THERE ARE PROBLEMS WITH THESE ASSUMPTIONS?**

19 A. No. Using resource plan #7 to calculate avoided energy costs is appropriate  
20 because it is the least cost plan. Using a different plan, one that is populated with  
21 peaking resources, is appropriate for calculating avoided capacity costs of QFs that  
22 would potentially displace peaking resources.

1  
2 **Q. ON PAGE 57, LINES 13 THROUGH 18, MR. BURGESS REITERATES HIS**  
3 **RECOMMENDED CHANGES TO THE FIXED CAPACITY COST**  
4 **ASSUMPTIONS. WHAT IS YOUR RESPONSE TO THESE CHANGES?**

5 A. Again, the Company could use more expensive resources to calculate  
6 avoided capacity costs but capacity payments are only available to non-solar QFs.  
7

8 **Q. ON PAGE 58, LINES 1 THROUGH 12, MR. BURGESS SUGGESTS THAT**  
9 **A 24 MW CAPACITY RESOURCE ADDITION SHOULD BE USED AS**  
10 **OPPOSED TO A 100 MW CAPACITY RESOURCE ADDITION. ON PAGE**  
11 **58, LINE 14 THROUGH PAGE 60, LINE 2, MR. BURGESS IDENTIFIES A**  
12 **SECOND OPTION, WHICH HE CALLS THE “TECHNOLOGY-**  
13 **NEUTRAL SEASONAL METHOD,” TO CALCULATE AVOIDED**  
14 **CAPACITY COSTS. IS HIS SUGGESTIONS REASONABLE?**

15 A. No. For the same reasons I have previously described, DESC’s need for  
16 capacity is driven by the winter season. Solar does not help with the capacity need  
17 primarily because the winter peak occurs either early in the morning before solar  
18 begins to generate energy or in the evening after solar is no longer generating.  
19 Because solar does not consistently provide capacity during the winter peak  
20 periods, the Company is unable to avoid any of its projected future capacity needs  
21 and, therefore, the avoided capacity cost of solar is zero.  
22

1 **Q. ON PAGE 60, LINE 3 THROUGH PAGE 61, LINE 1, MR. BURGESS**  
2 **SUMMARIZES THE AVOIDED CAPACITY COSTS THAT WOULD**  
3 **RESULT FROM HIS RECOMMENDED CHANGES. DO YOU BELIEVE**  
4 **HIS RESULTS ARE REASONABLE?**

5 A. For the reasons I stated previously, I do not believe his proposed avoided  
6 capacity costs are reasonable and they should be rejected.  
7

8 **REBUTTAL TO TESTIMONY OF MR. STEVEN LEVITAS**

9 **Q. WITH RESPECT TO MR. LEVITAS' TESTIMONY, PLEASE EXPLAIN**  
10 **HOW YOU ORGANIZE YOUR RESPONSES.**

11 A. In the same manner I previously responded to the testimony of the other  
12 parties' witnesses, my rebuttal testimony sequentially addresses certain issues raised  
13 by Mr. Levitas as they appear in his direct testimony.  
14

15 **Q. ON PAGE 31, LINE 8 THROUGH PAGE 32, LINE 3, MR. LEVITAS**  
16 **EXPRESSES CONCERNS ABOUT DESC'S PROPOSED SOLAR**  
17 **INTEGRATION CHARGE AND THE COMPANY'S APPROACH TO**  
18 **EMBEDDING THE CHARGE IN ITS AVOIDED COSTS RATHER THAN**  
19 **IMPOSING THEM AS A STAND-ALONE CHARGE. DO YOU AGREE**  
20 **WITH HIS CONCERNS?**

21 A. No. As described above, the most appropriate method of addressing issues  
22 created by solar intermittency is to model the system with higher operating

1 reserves. The increase in operating reserves is now part of the model and is  
2 reflected in our estimated avoided energy costs. Therefore, there is no additional  
3 charge included in the avoided costs for integration.

4 The Company observed that additional operating reserves equal to 35% of  
5 the installed solar generation is sufficient to cover most of the one-hour solar  
6 intermittency. Therefore, the avoided cost calculations were modeled with  
7 additional operating reserves equal to 35% of the installed solar generation, during  
8 solar generating hours.

9  
10 **REBUTTAL TO TESTIMONY OF MR. DEREK STENCLIK**

11 **Q. WITH RESPECT TO MR. STENCLIK'S TESTIMONY, PLEASE EXPLAIN**  
12 **HOW YOU ORGANIZE YOUR RESPONSES.**

13 A. My rebuttal testimony addresses an issue raised by Mr. Stenclik in his direct  
14 testimony.

15  
16 **Q. ON PAGE 4, LINES 14 THROUGH 19 OF HIS TESTIMONY, MR.**  
17 **STENCLIK ASSERTS THAT INCLUDING A COST OF VARIABLE**  
18 **INTEGRATION IS PREMATURE AT THIS TIME AND SUGGESTS THAT**  
19 **THE COMMISSION SHOULD DELAY ITS INCLUSION OF ANY**  
20 **VARIABLE INTEGRATION COSTS UNTIL AN INDEPENDENT STUDY**  
21 **HAS BEEN CONDUCTED. DO YOU AGREE?**

1 A. No, I do not agree. My analysis does not include a variable integration  
2 charge; rather, I run the model maintaining operating reserves equal to 35% of  
3 installed solar generation and the resulting calculation accurately reflects the  
4 avoided costs of solar energy. The cost of maintaining operating reserves equal to  
5 35% of installed solar generation is an actual cost that exists today. To ignore the  
6 cost of these operating reserves means that DESC will pay more for solar generation  
7 than its avoided costs, shifting the cost of these reserves onto our customers. Such  
8 a cost shift is in violation of Act 62 and any delay in including the cost of operating  
9 reserves in the analysis of avoided costs harms our customers and should be denied.

10  
11 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

12 A. Yes.